

Gas Laws Web Quest

Introduction

You are the owner of a SCUBA diving academy. In order to make sure none of your divers get sick or die due to scuba diving, you need to make your diving students aware of the gas laws that affect diving, such as Dalton's Law, Boyle's Law, Henry's Law, and Charles' Law.

The Task

You will use the gas laws to prevent your divers from getting "The Bends," air embolisms, and oxygen toxicity. In order to do this, you will:

- Take the SCUBA Quiz online
- Determine what SCUBA stands for and how it works.
- Identify the Boyle's Law, Charles' Law, and Dalton's Law Equations.
- Define "the bends," air embolisms, and oxygen toxicity.
- Put together a tri-fold pamphlet to distribute to your divers. The pamphlet must have a title page and an introduction to SCUBA page. It should also contain one page each for "the bends," air embolisms, and oxygen toxicity. These pages should contain an explanation of the condition using the appropriate gas law, physiology~ symptoms, and treatment. You may decide what to do with the remaining page.

Beginning Activities

SCUBA quiz

Next, take a look at the provided web sites to get some basic information on "the bends," air embolisms, and oxygen toxicity. Also, look at the web pages and your notes to make the connections with the gas laws.

Start putting your pamphlet together. Remember that you need the

SCUBA quiz site:

<http://www.thescubaguide.com> The link is located on the right side of the page. Click on "Scuba Certification" then "Learn the Basics" to "Scuba Quiz".

Or <http://www.asdk12.org/staff/garnerkimberley/pages/SCUBAwebquest.htm>

The link is located on the right side of the page. This gives some information about each of the potentially dangerous conditions facing divers.

Sites to help with Gas Laws:

<http://dbhs.wvusd.k12.ca.us/GasLaw/KMT-Gas-Laws.html> Chem Team Web page

<http://www.chemtutor.com/gases.htm> Chern Tutor Web page

[http://www.chemfiesta.com/Look for Gas Laws on Mr. Guch's Cavalcade of Chemistry](http://www.chemfiesta.com/Look%20for%20Gas%20Laws%20on%20Mr.%20Guch's%20Cavalcade%20of%20Chemistry)

Your notes from class on the gas laws

Sites to help with SCUBA info:

<http://www.chm.bris.ac.uk/webprojects2001/meeraus/physicallaws.html>

The Chemistry of SCUBA

<http://www.pbs.org/ktca/newtons/11/bends.html> .. The Bends"

<http://www.howstuffworks.com/question101.htm> "The Bends"

[http://www.drugbase.co.za/data/med info/decompr.htm](http://www.drugbase.co.za/data/med%20info/decompr.htm) Medical Information

[http://scuba.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fwww.gulftel.com%2F% 7Escubadoc](http://scuba.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fwww.gulftel.com%2F%207Escubadoc) General Information on Scuba Medicine

<http://www.mtsinai.org/pulmonary/books/scuba/sectionf.htm> Air Embolisms

<http://www.gulftel.com/-scubadoc/02tox.htm> Oxygen Toxicity

<http://www.howstuffworks.com/question493.htm> Oxygen Toxicity

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Learning Advice

1. Get your background information first before you start putting your pamphlet together.
2. Make a timeline for your group and stick to it.
3. Keep your data organized.
4. Work together so that all group members know ALL of the information, not just small chunks. (translate -> Don't break up the work, "You do this, I'll do that")
5. Do not miss class during this project!

The Process

1. Working in a group of 2 - 3 people, first take the online SCUBA quiz to find out what you know (and what you DON'T know) about SCUBA diving and the gas laws.
2. Next, take a look at the provided web sites to get some basic information on "the bends," air embolisms, and oxygen toxicity. Also, look at the web pages and your notes to make the connections with the gas laws.
3. Start putting your pamphlet together. Remember that you need the

following pages:

- o title
 - o an introduction to SCUBA page
 - o one page each for "the bends," air embolisms, and oxygen toxicity.
 - o one page that is up to you (this is your chance to be creative or give extra information)
4. Make sure that you give credit to any web page or book author whose information you used in your pamphlet. You may also use pictures from the web, but once again, you must give credit.
 5. Turn in your pamphlet ON APRIL 8, 2010

Conclusion: Turn it in by the deadline and it will be graded by the following rubric:

•Item	•Possible Pts.	•Earned Pts.
•Title	•5	•
•Introduction	•20	•
•Bends	•	•
•Explained by gas laws	•5	•
•Physiology	•5	•
•Symptoms	5	•
•Treatment	5	•
Air Emboli	•	•
•Explained by gas laws	5	•
•Physiology	•5	•
•Symptoms	•5	•
Treatment	•5	•
•Oxygen Toxicity	•	•
•explained by gas laws	•5	•
•Physiology	•5	•
•Symptoms	•5	•
•Treatment	•5	•
•Bibliography	•10	•
•	•	•
•TOTAL	•95	•

